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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/159,442	09/24/1998	ELWOOD G. NORRIS	T7029	5130
20444	7590	12/29/2005	EXAMINER	
VAUGHN W NORTH			LEE, PING	
THORPE NORTH WESTERN			ART UNIT	
P O BOX 1219			PAPER NUMBER	
SANDY, UT 840911219			2644	

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/159,442

Applicant(s)

NORRIS ET AL.

Examiner

Ping Lee

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5, 20 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al (US 4,823,908).

Regarding claims 1 and 5, Tanaka discloses a method for generating parametric audio output. The claimed electro acoustical transducer film diaphragm reads on the piezo vibrator in Tanaka because a film is being defined as a thin layer by dictionary. As shown in various figures in Tanaka, the piezo vibrator has a thin layer.

Regarding claims 20 and 23, Tanaka further shows the support structure (12,13).

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 2, 4, 7, 12, 13, 21, 24 and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Schindel et al (US 5,287,331).

Regarding claims 2, 7 and 21, Tanaka fails to explicitly show an electrostatic transducer. Tanaka teaches an ultrasonic generator using a piezoelectric vibrator without specifying the particular structure. One skilled in the art would have expected

that any specify design of the ultrasonic transducer could be used without generating any unexpected result.

Schindel et al (hereafter Schindel) teaches how to use a piezoelectric film (col. 3, lines 67-68) electrostatic transducer with a backplate (1) for generating ultrasonic signals. Thus, it would have been obvious to one of ordinary skill in the art to modify Tanaka in view of Schindel by using the piezoelectric film electrostatic transducer in order to generate the ultrasonic signals.

Regarding claims 4 and 24, Schindel teaches the thermal formed electro mechanical film diaphragm (col. 4, line 1).

Regarding claims 12 and 13, Schindel fails to show the dimension of the diaphragm is related to the wavelength of the lowest ultrasonic frequency. It was well known in the art that the frequency of a signal is inversely related to its wavelength.

Therefore, it would have been obvious to one of ordinary skill in the art to select a diaphragm dimension greater than the lowest ultrasonic frequency or ten times greater than the lowest ultrasonic frequency to ensure that the lowest ultrasonic frequency would be produced properly.

Regarding claim 26 and 28, Schindel suggests the plastic film diaphragm (col. 3, line 66).

Regarding claim 27 and 29, although Schindel and Tanaka respectively fail to show diaphragm used PVDF, PVDF was a well known material for making piezoelectric film.

5. Claims 2, 3, 6, 22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Sprenkels et al (US 4,908,805).

Regarding claims 3, 6, 22 and 25, Tanaka fails to explicitly show an electret transducer. Tanaka teaches an ultrasonic generator using a piezoelectric vibrator without specifying the particular structure. One skilled in the art would have expected that any specify design of the ultrasonic transducer could be used without generating any unexpected result. Sprenkels et al (hereafter Sprenkels) teaches how to use an electret transducer for generating ultrasonic signals. Thus, it would have been obvious to one of ordinary skill in the art to modify Tanaka in view of Sprenkels by using the electret transducer in order to generate the ultrasonic signals.

6. Claims 4, 8-11, 15, 16, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Tibbetts et al (US 4,056,742).

Regarding claims 4, 8-11, 15 and 16, Tanaka fails to show thermally formed film diaphragm transducer. Tanaka teaches an ultrasonic generator using a piezoelectric vibrator without specifying the particular structure. One skilled in the art would have expected that any specify design of the ultrasonic transducer could be used without generating any unexpected result. Tibbetts et al (hereafter Tibbetts) teaches how to use a piezoelectric film (col. 3, lines 67-68) transducer with a backplate (1) for generating ultrasonic signals. As shown in the drawings, Tibbetts suggested the curvature for both the film and the backplate. Although Tibbetts fails to show that the film is thermally formed, it was well known in the art to use heat to alter the shape of the

film. Thus, it would have been obvious to one of ordinary skill in the art to modify Tanaka in view of Tibbetts by using the piezoelectric film transducer in order to generate the ultrasonic signals.

Regarding claim 18, although Tibbetts fails to explicitly show the distance between peak to trough is one-half wavelength, this is an inherent feature to ensure that the piezo film to operate properly.

Regarding claim 19, Tibbetts' diaphragm has concave dimples (s2, s4, s6) in closely spaced, side by side array.

7. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Sakagami et al (US 4,784,915).

Regarding claims 4 and 17, Tanaka fails to show thermally formed film diaphragm transducer. Tanaka teaches an ultrasonic generator using a piezoelectric vibrator without specifying the particular structure. One skilled in the art would have expected that any specify design of the ultrasonic transducer could be used without generating any unexpected result.

Sakagami et al (hereafter Sakagami) teaches how to use a piezoelectric film (col. 6, lines 27-35) transducer with a backplate (2) for generating ultrasonic signals. As shown in col. 6, Sakagami suggested that the spacing between the piezo film and the backplate is quarter wavelength. Thus, it would have been obvious to one of ordinary skill in the art to modify Tanaka in view of Sakagami by using the piezoelectric film transducer in order to generate the ultrasonic signals.

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 1 and 20 are rejected on the ground of nonstatutory double patenting over claim 3 of U. S. Patent No. 6,606,389, or claim 4, 11, 18, 27 or 28 of U. S. Patent No. 6,359,990 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: claims 1 and 20 of the instant application specifying how to generate a parametric audio output to an electro acoustical transducer film diaphragm which has been claimed in claim 3 of patent '389, and claim 4, 11, 18, 27 or 28 of patent '990.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Response to Arguments

10. Applicant's arguments filed 10/3/05 have been fully considered but they are not persuasive.

Applicant argued that Tanaka fails to show an electro acoustical transducer film diaphragm. Applicant alleged that Tanaka discloses a ceramic piezoelectric vibrator, not a film diaphragm as claimed.

It came to examiner's attention that Tanaka never used the word "ceramic" in the entire patent. A film, by definition, is a thin layer. As disclosed in the patent, the vibrator of Tanaka is formed of a thin layer of piezoelectric. Applicant's argument that prior art film emitters in general (linear) sound applications have been recognized as low power devices is not supportive by any evidence. Applicant pointed out that Tanaka discloses a high power device. However, this is irrelevant because Tanaka discloses the claimed invention.

Applicant argued that the present invention enables the use of large area film emitters many wavelengths in size for claim 13.

However, this limitation is not in claims 3, 6, 22 and 25. Therefore, it is irrelevant.

Applicant argued that Schindel, Sprenkels, Tibbetts et al and Sakegami fail to teaching for use of a film transducer in a parametric system.

Examiner would like to point out that the rejection of claims is based on Tanaka in view of Schindel, Sprenkels, Tibbetts or Sakegami not any of the reference alone. Tanaka teaches the concept of nonlinear conversion of the ultrasonic frequencies without specifying any detail structure of the piezo vibrator. The secondary references teaches various examples of piezo vibrator. Therefore, it would have been obvious to modify Tanaka in view of the secondary references.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522.

The examiner can normally be reached on Monday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ping Lee
Primary Examiner
Art Unit 2644

pwl